

**Minimally Invasive Surgical Correction Of Congenital Heart Defects
Via Lower Partial Sternotomy**

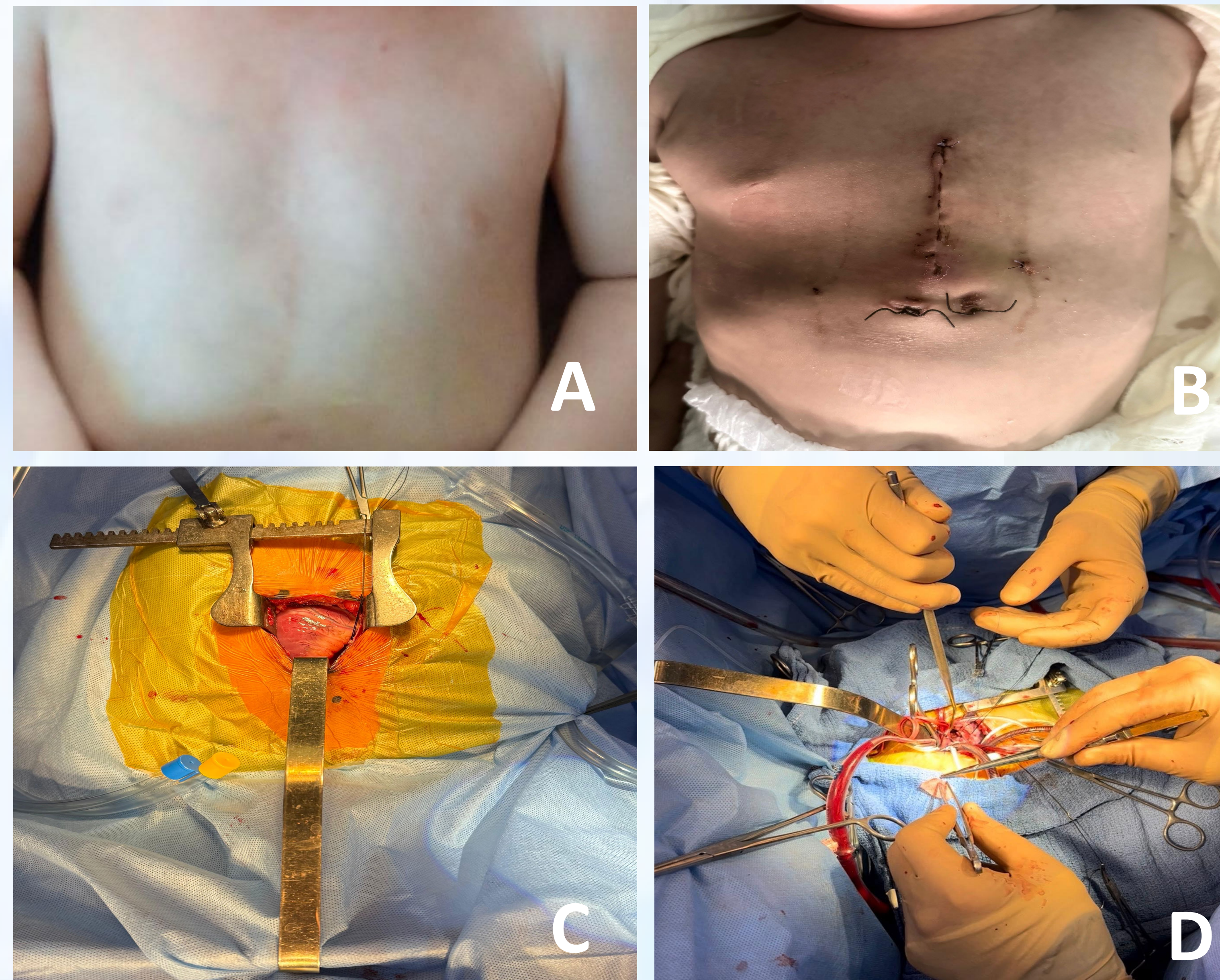
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BACKGROUND

Surgical correction of simple congenital heart defects, including ventricular septal defects (VSD), pulmonary artery stenosis, and tetralogy of Fallot, can be performed via lower partial sternotomy. This minimally invasive approach preserves the sternal manubrium, reduces the risk of sternal fractures, and allows concealment of the surgical scar, improving cosmetic outcomes

METHODS

Since January 2025, 11 patients underwent correction via lower partial sternotomy: 7 VSD closures (5 inlet, 2 outlet with severe pulmonary hypertension), 1 VSD with pulmonary artery stenosis, 1 isolated pulmonary artery stenosis, and 1 tetralogy of Fallot. Patients included 5 females and 6 males, mean age 1.7 ± 1.5 years, mean weight 9.8 ± 4.0 kg, and mean body surface area 0.29 ± 0.18 m². The sternum was divided from the lower portion to the manubrium, pericardium opened without thymus involvement. Cardiopulmonary bypass was via central cannulation; open pulmonary valvuloplasty was performed on the beating heart. Intraoperative transesophageal echocardiography guided the procedures



A-Photo 6 months after surgery, scar
B-Photo 5 days after surgery
C,D-Intraoperative photo

RESULTS

No in-hospital mortality or major complications occurred. Mean operative time was 210.5 ± 38.3 minutes, CPB 93.7 ± 38.1 minutes, and aortic cross-clamp 67.5 ± 28.1 minutes. Mean intraoperative blood loss was 131.0 ± 75.5 mL. ICU stay averaged 57.6 ± 51.7 hours; hospital stay 9.0 ± 5.1 days. PredischARGE echocardiography showed no residual shunts

CONCLUSIONS

Lower partial sternotomy for the correction of ventricular septal defects, including those combined with pulmonary valve stenosis, is a safe and effective surgical approach that provides satisfactory clinical and aesthetic outcomes